STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

North Carolina Board of Transportation
Environmental Planning and Policy Committee
Meeting Minutes for August 4, 2004

A meeting of the Environmental Planning and Policy Committee (EPPC) was held August 4, 2004 at 8:30 AM in the Board Room (Room 150) of the Transportation Building. Board Member Nina Szlosberg chaired the meeting. Other Board of Transportation members that attended were:

Conrad Burrell	Doug Galyon
Mac Campbell	Larry Helms
Bob Collier	Cam McRae
Marion Cowell	Gordon Meyers
Nancy Dunn	

Other attendees included:

Clay Ballantine	Don Lee	Joel Setzer
Bryant Blair	Sharon Lipscomb	Roger Sheats
Greg Dean	Ehren Meister	Pat Simmons
M. L. Holder	Beau Mills	Stacy Smith
C.A. Gardner	Mike Mills	John Sullivan
Terry Gibson	Jon Nance	Charles Tomlinson
Gail Grimes	Tim Niles	Anne Tazewell
Julie Hunkins	Ken Pace	Don Voelker
Neil Lassister	Benton Payne	

Ms. Szlosberg called the meeting to order at 8:30 AM and accepted a motion to approve the meeting minutes from the July committee meeting as presented. The minutes were approved.

Ms. Szlosberg circulated the attendance sheet, then opened by reminding the board of the importance of air quality and its priority to the governor. Governor Easley is recognized for leading the charge in the Clean Smokestokes Act, which is the most aggressive act of its kind in the United States. This act will cut emissions by fifty percent. The other fifty percent can be cut through mobile sources. The governor has asked the department to look at this and find ways to reduce air pollution via cars and trucks.

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Ms Szlosberg explained how she and Deputy Secretary Roger Sheats saw a presentation by Dr. Clay Ballantine that was very moving and they invited him to speak to the Board. Dr. Ballantine is an internist and "hospitalist" who practices medicine in Asheville. He did his medical residency in Greensboro. When he moved to Asheville, he noticed that people had a lot of respiratory problems. He began to investigate and realized it was the air quality. Clean air and its effect on human health has become his passion. He serves on the State Board of the American Lung Association and also the Buncombe County Clean Air Trust. He has also provided testimony for many committees including the United States Congressional Subcommittee on Public Health.

Dr. Ballantine opened by thanking the board for the chance to speak. He noted prior to speaking that he travels all around to speak about his passion and interest and has never received any money other than travel expenses. Dr. Ballantine noted that the information he is going to give is unbiased and a synopsis of medical evidence. His own personal feeling on clean air is that it is very important. The two main pollutants he plans to discuss, that have to do with traffic generation, are ozone and particulates. He will discuss the health effects on children and the overall healthcare cost associated.

The information he uses in his speeches comes from government sources or medical journals. To have something published in a medical journal you have to get it approved by a board of harsh critics. The information published in the journals is the most valid information you can get in any medical field. There are thousands of studies that have been released in the past few years. This data is now filtering out so that decision-makers can use it to help refine their decision-making. Some of these studies look at specific physiological questions -- such as what one chemical does to one kind of infection fighting cell. Some are broad and they may take every medical record in the United States and compare them with air pollution through an epidemiological approach. A dose response relationship is one of the things that prove the case about air pollution causing health problems. In general, the more air pollution you see the more health problems you see. When Dr. Ballantine moved to Asheville he had a lot of patients come to him with emphysema and asthma problems, normally uncommon ailments.

The three main causes of death in the United States are strokes/heart attacks, cancer and lung disease. Air pollution is beginning to play a major role in all of these and lung disease has increasing rates.

The NC Medical Society passed a unanimous resolution to ask all branches of state government to work toward cleaner air and reduce the impact on public health. There are four main pollutants: ozone, particulates, air-borne toxins and mercury. There is a difference between an assumed risk and an imposed risk. Assumed risk is based on your own behavior and imposed is based on the risk of others. Most of the air pollution problems are imposed risks. Just by living and breathing air you are at risk. Children, the elderly, people with health problems and anyone outdoors is at higher risk.

Dr. Ballantine noted that the health problems associated with the air pollution problem go from birth to death -- impaired fertility, birth defects, respiratory infections, asthma, emphysema, lung cancer, heart attacks, strokes and premature death. Ozone is the biggest player and its recipe is ultra violet light, volatile organic and nitrogen oxides. Nitrogen oxide is the rate-controlling step that determines the

amount of ozone we have to deal with. Nitrogen oxide comes from fossil fuels -- it's a 50/50 mix between the power plants and automobile sources. Transportation planning is what determines how many vehicle miles people have to travel. Ozone is a seasonal problem. It has a daily variation and is an outdoor problem. It does not penetrate inside buildings and is 1/40 the levels of outside. Ozone is clear and colorless and is highly reactive. Inhaling ozone is like inhaling bleach -- it does to your lung lining what getting sun burned does to your skin. There are thousands of studies that show when ozone exposure goes up -- asthma goes up.

In the past twenty years every age group have increased at least 50% in the amount of asthma cases reported. The asthma death rate has increased over 100%. The longer you are exposed to ozone and the higher the ozone concentration, the more asthma and harder time you are going to have breathing. One third to one half of asthma attacks in North Carolina are due to air pollution exposure. Ozone causes asthma and the more people outside -- the higher the asthma rates are. Ozone generates more medication use by patients. Hospital use and death rates have all been tied to ozone exposure. Allergy symptoms, ear infections and respiratory infections are also symptoms of ozone. All of North Carolina's urban areas are on the American Lung Association's list of top 25 worst ozone exposure and risk areas.

Particulates are very small particles, carbon fragments and small metals. Particulates are around all year and can penetrate buildings. About half of particulates come from factories and the other half from vehicle emissions. Particulates are made up of thirty-five elemental metals, nine light PAH's, and fourteen heavy PAH's and Bio-organics. Particulates get deep into your lungs and interact with the infection fighting cells and enter directly into the blood stream. The initial inflammation of the lungs is the most important thing in cardiovascular disease and is more important than cholesterol in determining who has heart attacks. Sudden cardiac death is the leading cause of death in the United States. Particulates trigger vascular inflammation and increase blood-clotting proteins. They trigger arrhythmia and set off irregular heartbeats. Any time you have a spike in air pollution -- an increase in heart attacks will occur for that day and the next day. This has been a replicated study all over the country. A study between traffic emissions and death showed that people living near a major road had doubled their overall death rates from heart and lung disease than those who lived further away. Another study from Sweden on tunnel workers concluded that the workers had much higher incidences of heart attacks due to exposure to particulates. The American Cancer Society conducted a study that showed more pollution exposure leads to more lung cancer, cardiovascular problems, lung disease and stroke death. The risk increase is about the same as living with a smoker.

The immune system has two different responses -- a normal infection fighting response and an allergic/asthmatic response. Diesel exhaust permanently changes the immune response from the infection fighting to the allergic/asthmatic response. When you do get a virus or bacteria, the response would be the wrong kind. Everything that has to do with asthma goes up when you have particulates in your system. Allergy symptom scores go up three times when you've had air pollution in your system. Particulates are the cause of up to 4% of all death in the US and the life expectancy can drop from 1 to 3 years. A recent study by the Environmental Protection Agency (EPA) is showing that 10 to 15 years can be lost by exposure to air pollution. Even bellow the EPA thresholds there are still health affects that go with that. In western North Carolina there is a low mortality and lung cancer death rate, but a higher

mortality from lung disease and particulates in the air. In healthy people the asthma rates are increased and a faster decline in lung functionality occurs with age.

Dr. Ballantine noted that this generation of children is having air pollution exposure that is unrivaled. This generation is at risk for birth defects, asthma, lung disease, increased respiratory infections and ear infections -- and all of this has been tied to air pollution exposure. It continues to get worse in children. Children's asthma is the number one chronic disease among children. In addition, it's the costliest disease, the number one disease for hospitalization, lost school days and lost parent wages. A third to half of the asthma in North Carolina is due to air quality. About ten percent of children in the country have asthma. Across the state, 25-30% of the children in middle school grades has asthma symptoms. The ozone is at its daily peak around the time children get out of school and play outside. A study of high school athletes showed that kids who exercise more outside have higher asthma rates.

Overall, lung function as you grow and exposure to air pollution is capping off the development of lung function in children. The children who grow up in dirty air have a 10% lower lung function than those who grow up in clean air. In most of NC we have air pollution levels that are in the dirty air category. As lung function declines it pushes the age of adequate lung functionality to younger ages.

Dr. Ballantine noted some examples of improved air quality related to improved public health:

- In 1996 the City of Atlanta shut down private car traffic in the inner part of the city, with mass transit transportation for the Olympics. Ozone levels dropped dramatically down to 20% of what they normally were. They noticed that there was no more pediatric asthma in the emergency rooms.
- After Germany's reunification, pollution dropped and children's respiratory symptoms decreased dramatically because they shut down many of the dirty plants in former East Germany.
- Ireland stopped the sale of coal in 1990 and dropped their particulate exposure by twenty parts per billion, and an overall 10% drop in cardiovascular death.
- In Hong Kong they took the sulfur out of the fuel oil and saw a drop in the cardiovascular mortality.

For every ten parts per billion of particulates you can add an extra $177 cost to Medicare per patient per year. In Raleigh there are about 100,000 elderly and there are $35 million in extra Medicare costs per year due to air pollution. In the entire state it's about $200 million just from air pollution exposure. $15 million a year is spent on asthma care for 7th and 8th graders alone. If you add other children groups, doctor visits, prescription costs, lost revenue to the school system, parents absent from jobs -- the state loses $100 million to asthma. At the county level, Buncombe County has asthma as the largest single item on their budget. Across the county over 50% are on Medicaid, and $400,000 is budgeted to asthma.

We all pay for the health care costs -- the private insurance premium, the lost school revenue for absences, in federal taxes for Medicare, state taxes for Medicaid, county taxes -- and hospital and health care providers pass on the cost of the uninsured. In our region there are 33 million people living in significant air pollution. There are 11,000 excess deaths yearly due to air pollution in this region and $20 billion in excess health care costs per year due to air pollution.

When the Southern Appalachian Mountain Initiative (SAMI) air quality data was analyzed they came up with estimates that if we cleaned up particulates and the ozone we would save $12 billion to $44 billion. Particulates make haze, not ozone or humidity. If you disregard healthcare costs, just look at the tourism lost by haze and that will be even more motivation to improve air quality. North Carolina loses $1 billion to $3 billion in annual recreation and tourism revenue due to air pollution and haze.

The five pieces to the "pollution puzzle" are smokestacks, regional smokestacks, vehicles, land use and transportation planning, and non-road engines. NC passed the Clean Smokestacks Legislation, which was the largest job creation bill for several years. We are paying to clean up our power plants and have better energy efficiency.

The Attorney General has just recently sent a letter to ask the surrounding states to clean up their smokestacks and to trigger EPA enforcement. If it doesn't get under control it unfortunately may end up with costly lawsuits.

The car you buy is the single most important environmental decision an individual can make. We will gain some ground with fuel efficiency, but the overall vehicle miles traveled are going up at a rate that is out stepping fuel efficiency. That's why it's important to have low sulfur fuel statewide. It's also important to work on diesel emissions, which has been outside regulatory control for some time.

Land use and transportation planning -- the Atlanta experience shows that you cannot pave your way out of traffic congestion. The more you pave the more traffic congestion you get. The Atlanta Chamber of Commerce is very serious about making changes in their transportation planning. This is the greatest piece of the puzzle that DOT's can influence. It is the reputation that the DOT doesn't give mass transit, bikeways and greenways a lot of attention. Without more investment in bikeways and greenways it forces people to use automobiles. There is an obesity epidemic and NC is one of the worst in the nation, and you don't burn any extra calories getting into your car. To help with the air pollution problem there is federal regulation of all forms on diesel and gas engines and retrofitting with catalytic converters.

Dr. Ballantine concluded with some final points. The Medical Society and Governor Easley should continue to urge the DOT to prioritize air quality impacts in transportation planning. There are massive hidden healthcare costs associated with the transportation system that needs to be fitted into the cost-benefit analysis. Over half the problem is traffic, and air pollution is an imposed risk on all population groups. View air pollution not only as an environmental issue but also as an economic, tourism and health issue. Dr. Ballantine urged the Board to take air quality into consideration because everyone in the state is impacted by the decisions they make.

Board Member Cam McRae asked the question: In the mountains in particular, do the smokestacks in Tennessee have anything to do with NC's air problems? Dr. Ballantine responded that the SAMI data shows that NC does have a problem with smokestack effluent getting into our mountains from Tennessee, north Alabama, Georgia and all of our neighbors. Coal fired power plants and automotive emissions from Charlotte, Atlanta and Knoxville are also occurring. The SAMI data shows that on our

worst days, it's not outside stuff coming in, but it's pollution being generated by I-26, I-40, and automobile use. When we have really bad pollution days it's generated locally. I-26 and I-40 are the largest pollution generators in the western half of the state.

Ms. Szlosberg thanked Dr. Ballantine for his presentation and attendance at the meeting. She adjourned the meeting at 9:35 AM. The next meeting of the Environmental Planning and Policy Committee is scheduled for Wednesday, September 1, 2004 at 8:30 AM in the Board Room (Room 150) of the Transportation Building.

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